We claim:

1. A vehicle auxiliary electrical generating apparatus, comprising:

a housing adapted to be mounted to an exterior portion of a vehicle;

an auxiliary engine located in the housing;

an electrical generating device coupled to the auxiliary engine for generating electricity;

a radiator connected to the auxiliary engine for receiving engine coolant flowing from the auxiliary engine to cool the engine coolant;

a heater element in fluid communication with the radiator for receiving at least part of the engine coolant flowing from the auxiliary engine; and

a fan adjacent to the heater element and powered by the electrical generating device for causing air to flow through the heater element into an interior portion of the vehicle.

2. The apparatus according to claim 1, further comprising:

a compressor for compressing gaseous refrigerant;

a condenser in communication with the compressor for condensing the compressed refrigerant into a liquid refrigerant; and

an evaporator in fluid communication with the condenser for converting the liquid refrigerant into gaseous refrigerant, the evaporator being mounted adjacent the heater element so that air moved by the fan flows through the evaporator into the interior of the vehicle.

3. The apparatus according to claim 1, wherein the electrical generating device generates AC electricity.

4. The apparatus according to claim 1, wherein the electrical generating device generates DC electricity.

5. The apparatus according to claim 1, wherein the heater element and fan are mounted exterior of the housing.

6. The apparatus according to claim 1, wherein the heater element and the fan are mounted in the housing.

7. The apparatus according to claim 2, wherein the compressor is mechanically driven by the auxiliary engine.

8. The apparatus according to claim 2, further comprising an electrical motor coupled to the compressor for driving the compressor, the electrical motor being powered by the electricity generated by the electrical generating device.

9. The apparatus according to claim 1, wherein the housing has a first compartment that contains the auxiliary engine, a second compartment that contains the radiator, and a third compartment that contains the heater element and the fan.

10. In a motor vehicle having a main engine, a main radiator coupled to the main engine for receiving and cooling main engine coolant, a heater element in communication with the main radiator for receiving a portion of the main engine coolant flowing from the main engine, a main compressor for compressing gaseous refrigerant, a main condenser in communication with the main compressor for condensing the compressed refrigerant into a liquid refrigerant, a main evaporator in fluid communication with the main condenser for converting the liquid refrigerant into a gaseous refrigerant, and a fan that moves air through the heater element and the evaporator for selectively heating and cooling the interior of the vehicle while the main engine is operating, the improvement comprising:

an auxiliary engine mounted to the vehicle;

an electrical generating device coupled to the auxiliary engine for generating electricity;

an auxiliary radiator connected to the auxiliary engine for receiving auxiliary engine coolant flowing from the auxiliary engine to cool the auxiliary engine coolant;

an auxiliary heater element in fluid communication with the auxiliary radiator for receiving at least part of the auxiliary engine coolant flowing from the auxiliary engine;

an auxiliary compressor mounted to the vehicle for compressing auxiliary gaseous refrigerant;

an auxiliary condenser in communication with the auxiliary compressor for condensing the auxiliary compressed refrigerant into an auxiliary liquid refrigerant;

an auxiliary evaporator in fluid communication with the auxiliary condenser for converting the auxiliary liquid refrigerant into auxiliary gaseous refrigerant; and

an auxiliary fan powered by the electrical generating device that moves air through the auxiliary evaporator and the auxiliary heater into the interior of the vehicle for selectively heating and cooling the interior of the vehicle while the main engine is shut off.

11. The vehicle according to claim 10, further comprising:

a housing mounted to an exterior portion of the vehicle, the housing having three compartments; and wherein

the auxiliary engine and the electrical generating device are mounted in a first compartment of the housing, the auxiliary radiator and the auxiliary condenser are mounted in a second compartment of the housing; and the auxiliary heater element, the auxiliary evaporator and the auxiliary fan are mounted in a third compartment of the housing.

12. The vehicle according to claim 11, wherein the second compartment is located at a higher elevation than the first compartment.

13. A vehicle auxiliary air conditioning and heating apparatus, comprising:

a housing having first, second and third compartments adjoining each other and adapted to be mounted to an exterior portion of a vehicle;

an auxiliary engine mounted in the first compartment of the housing;

a compressor mounted in the first compartment and driven by the auxiliary engine for compressing gaseous refrigerant;

a radiator connected to the auxiliary engine and mounted in the second compartment for receiving engine coolant flowing from the auxiliary engine to cool the engine coolant;

a condenser mounted in the second compartment in communication with the compressor for condensing the compressed refrigerant into a liquid refrigerant;

an evaporator mounted in the third compartment in fluid communication with the condenser for converting the liquid refrigerant into gaseous refrigerant;

a heater element mounted in the third compartment in fluid communication with the radiator for receiving at least part of the engine coolant flowing from the auxiliary engine; and

a fan mounted in the third compartment for moving air through the heater element and the evaporator into an interior portion of the vehicle for selectively heating and cooling the vehicle.

14. The apparatus according to claim 13, further comprising:

a supply duct and a return duct leading from the third compartment for supplying air discharged by the fan to the interior of the vehicle and returning air to the third compartment from the interior of the vehicle.

15. The apparatus according to claim 13, wherein the second compartment is elevated relative to the first compartment.

16. A method for heating an interior portion of a vehicle, comprising:

mounting to an exterior portion of the vehicle an auxiliary engine, a radiator, and an electrical generating device;

mounting to the vehicle a heater element and an electrically driven fan;

operating the auxiliary engine, thereby causing engine coolant to flow through the radiator and causing electrical power to be generated by the electrical generating device;

flowing some of the engine coolant from the auxiliary engine through the heating element; and

operating the fan with power supplied by the electrical generating device to discharge air through the heater element into the interior portion of the vehicle.

17. The method according to claim 16, further comprising:

powering an air conditioning system with the auxiliary engine for selectively cooling the interior of the vehicle.

18. The method according to claim 16, further comprising:

mounting an evaporator adjacent the heater element;

supplying liquid refrigerant to the evaporator, and converting the liquid refrigerant to a cooler gaseous refrigerant in the evaporator; and

operating the fan to discharge air through the evaporator to cool an interior portion of the vehicle.

19. The method according to claim 16, further comprising:

providing the vehicle with a main engine, a main radiator, a main heater element, and a main interior fan;

moving the vehicle with the main engine and cooling main engine coolant with the main radiator; and circulating some of the main engine coolant through the main heater element, and with the main interior fan, discharging air through the main heater element into the interior of the vehicle.